[0129] In accordance with an example embodiment of the invention, the wireless memory tag may receive the optical power from the mobile wireless device and use it to operate the electronic components in the tag, including accessing, reading from and writing into the memory module in the tag.

[0130] In accordance with an example embodiment of the invention, the mobile wireless device may receive an NFC message from the wireless memory tag, indicating a change in optical power requirements of the tag. In response, the mobile wireless device may adjust the optical power transmitted it transmits, based on the indicated change in optical power requirements.

[0131] In accordance with an example embodiment of the invention, the mobile wireless device may transmit optical power to the wireless memory tag to supplement energy provided to the wireless memory tag by the near field communications signal.

[0132] In accordance with an example embodiment of the invention, the mobile wireless device may receive an NFC message from the wireless memory tag, indicating no more optical power may be required by the tag and, in response, switch off the camera flash energy source in the mobile wireless device.

[0133] In accordance with an example embodiment of the invention, an alternative to a camera flash may be the light source of a pico projector. It may be used in two ways: 1) the projectors lens may be directly pointed towards the tag, or 2) there may be an alternative light guide that may be used to channel the projector's light to a convenient location for powering the tags.

[0134] In accordance with an example embodiment of the invention, an alternative to a camera flash may be any suitably located and bright enough light source for powering. In case a mobile device, tablet, etc may contain a separate torch, that may also be used.

[0135] FIG. 1A is an example network diagram of a mobile wireless device A and a wireless memory tag B, performing an initial setup negotiation 40 using a Near Field Communications (NFC) connection. The negotiation may be to establish supplementary optical power delivery from the mobile wireless device A to the wireless memory tag B, in accordance with example embodiments of the invention.

[0136] In accordance with an example embodiment of the invention, the mobile wireless device A may be a communications device, PDA, cell phone, laptop or palmtop computer, or the like. The mobile wireless device A includes a processor 20A, which includes a dual core or multi-core central processing unit (CPU_1 and CPU_2), a random access memory (RAM), a read only memory (ROM), and interface circuits to interface with one or more radio transceivers, battery and other power sources, key pad, touch screen, display, microphone, speakers, ear pieces, camera or other imaging devices, etc. in the mobile wireless device A. The RAM and ROM may be removable memory devices such as smart cards, SIMs, WIMs, semiconductor memories such as RAM, ROM, PROMS, flash memory devices, etc. The an NCI driver in mobile wireless device A communicates over an NFC controller interface (NCI) with NCI firmware in the NFC controller 16A via a transport layer driver in mobile wireless device A and a transport layer firmware in NFC controller 16A.

[0137] The mobile wireless device A may include a digital camera 22 and an LED flash 24 or other suitable flash source. The digital camera includes a single lens or a lens system for forming an image on a sensor, such as a solid-state sensor. Under the control of the processor 20A, an image may be captured when the user takes a picture and the captured image may be stored in the RAM memory. The camera 22 may have a user-interface to allow the user to choose the settings of the camera. The camera 22 may also have a flash unit 24 with an emissive light source, such as a light emitting diode (LED) or other suitable flash source, powered by the battery 26, to illuminate the object being photographed. The flash unit 24 may be operatively connected to the processor 20A so that the LED light source or other suitable flash source of the flash unit 24 may be controlled or addressed by the processor 20A. The camera 22 may have an ambient light sensing unit for determining the level of ambient light. A lookup table associated with the processor 20A, may store calibration weights for the amount of power to be applied to the flash unit LED or other suitable flash source 24 to compensate for various levels of ambient light sensed by the light sensing unit. If the sensor signal may be below a pre-defined value, the flash unit 24 may be identified as the main source of illumination, and the calibration weight may be selected from the lookup table to produce a correct amount of illumination to enable capturing a good image of the object being photographed.

[0138] The mobile wireless device A and wireless memory tag B are each coupled to an NFC controller 16A and NFC controller 16B, respectively, via an NFC controller interface (NCI). The NFC controllers 16A and 16B are capable of exchanging near-field communication (NFC) RF signals, according to an embodiment of the present invention. The mobile wireless device A may request that the NFC controller 16A start discovery by sending a "discover" command. Once discovery has been started, the NFC controller 16A notifies the mobile wireless device A of every detectable target NFC device or tag by sending a Notification with a Status and relevant parameters.

[0139] The NFC controller 16A may be embodied as hardware, software, firmware, or a combination of these constructs. It may be an integral part of the mobile wireless device A or it my be an integrated circuit chip or card physically attached to the mobile wireless device A, such as with a flash card adapter. The NFC controller 16A may includes a processor, a read only memory (ROM), and random access memory (RAM). The NFC controller 16A may include an NFC radio or the NFC radio may be separately connected. The NFC controller 16A may include its own battery or it may use power supplied by the mobile wireless device A. The ROM and/or RAM may be a removable memory device such as a smart card, SIM, WIM, semiconductor memory such as RAM, ROM, PROMS, flash memory devices, etc.

[0140] NCI firmware in the NFC controller 16A communicates bidirectionally with the NFC controller 16B via magnetic field induction, where two loop antennas are located within each other's near-field, effectively energizing a wireless contact by forming an air-core transformer. An example NFC radio operates within the unlicensed radio frequency ISM band of 13.56 MHz, with a bandwidth of approximately 2 MHz over a typical distance of a few centimeters. The user may bring the NFC radio on the NFC controller 16A close to the NFC controller 16B of the wireless memory tag B to allow near-field, bidirectional communication between the devices.

[0141] When two NFC controllers 16A and 16B are brought into close proximity, they may establish NFC communication based on the NFC Forum Logical Link Control Protocol (LLCP) specification. In example embodiments of